

Amendment and Response

Applicant: Michael Bauer et al.

Serial No.: 10/598,143

Filed: August 18, 2006

Docket No.: I550,236,101/2003P54067WOUS

Title: SEMICONDUCTOR COMPONENT HAVING A STACK OF SEMICONDUCTOR CHIPS AND METHOD FOR PRODUCING THE SAME

REMARKS

The following remarks are made in response to the Non-Final Office Action mailed December 6, 2011. Claims 1-23 have been cancelled. Claims 33-39 have been allowed. Claims 24-32 and 40-46 were rejected. With this Response, claims 24 and 40 have been amended and claim 46 has been cancelled without prejudice. Claims 24-39 and 40-45 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. § 102

Claims 24-27 and 46 were rejected under 35 U.S.C. 102(b) as being anticipated by US Publication No. 2003/0132527 to Coomer ("Coomer").

Claims 24-32 and 40-46 were rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,837,566 to Pedersen ("Pedersen").

With this Response, claim 46 has been cancelled without prejudice.

Additionally, independent claim 24 has been amended to define that **the semiconductor chips each comprise a top side and a rear side with edge sides extending there between and have contact areas extending as far as the edge sides of the semiconductor chips, with the contact areas having regions accessible from both the top side and the edge sides of the semiconductor chips, and that the conductor portion electrically connect contact areas of the semiconductor chips via at least the regions of the contact areas accessible from the edge sides of the semiconductor chips.** It is noted that support for such amendments can be found at least with reference to Figure 1 and the associated description which illustrate and describe contacts 5 having regions 18 which are accessible from both the top sides 11 and the edge sides 10 of the semiconductor chips. Applicants respectfully submit that Coomer fails to teach or suggest the such limitations as defined by amended independent claim 24.

While Coomer describes forming conductors on top and edge sides of semiconductor devices, such as conductors 320 of Figure 3 and conductors 410, 420, and 430 of Figure 4, Coomer teaches only that the conductors begin at a starting pad on one device and end at a destination pad on another device (paragraphs 0018 and 0023). Coomer makes no teaching or

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suggest whatsoever that the starting and destination pads **extend as far as the edge sides of the semiconductor chips and have regions accessible from both the top side and the edge sides of the semiconductor chips** nor that **conductor portions electrically connect the contact areas of the semiconductor chips of the semiconductor chip stack via at least the regions of the contact areas accessible from the edge sides of the semiconductor chips**, as defined by amended independent claim 24. Coomer is completely silent as to any features of the starting and destination pads.

In view of the above, Applicants respectfully request that the rejection of amended independent claim 24 under 35 USC 102 over Coomer be withdrawn. Since claims 25 -27 depend from and further define patentably distinct amended independent claim 27, Applicants respectfully request that the rejections of dependent claims 25-27 under 35 USC 102 over Coomer also be withdrawn.

Applicants respectfully submit that Petersen also fails to teach or suggest the semiconductor device as defined by amended independent claim 24.

Petersen describes a method wherein a group of adjacent dies 32 are interconnected with one another by one or more layers of metal interconnect circuitry on a silicon segment, wherein internal bond pads 44 of the dies 32 are connected via the metal interconnect circuit to edge bond pads 42 of the silicon segment, wherein the silicon segments or substrates are then stacked on top of one another and vertically interconnected using the edge bond pads of the silicon segment (Abstract; Col. 4, lines 14-48). As such, Peterson makes no teaching or suggestion with regard to **semiconductor chips having contact areas extending as far as the edge sides of the semiconductor chips, with the contact areas having regions accessible from both the top side and the edge sides of the semiconductor chips**, and that **a conductor portion electrically connects contact areas of the semiconductor chips via at least the regions of the contact areas accessible from the edge sides of the semiconductor chips**. Peterson makes no teaching or suggestion with respect to stacking semiconductor chips directly on top of one another as described by the present application and as defined by independent claim 24, but instead describes stacking substrates (i.e. the silicon segments) with the chips disposed thereon and, thus,

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essentially describes the conventional stacking technique of providing rewiring plates between the stacked components as described in the Background of the present application.

In view of the above, Applicants respectfully request that the rejection of amended independent claim 24 under 35 USC 102 over Petersen be withdrawn.

With this Response, independent claim 40 has been amended to include limitations similar to those described above with respect to amended independent claim 24. As such, for at least the same reasons described above with respect to the allowability of amended independent claim 24, Applicants respectfully request that the rejection of amended independent claim 40 under 35 USC 102 over Petersen also be withdrawn.

Since claims 25-32 depend from and further define patentably distinct amended independent claim 24, and claims 41-45 depend from and further define patentably distinct amended independent claim 40, Applicants respectfully request that the rejections of dependent claims 25-32 and 41-45 under 35 USC 102 over Petersen also be withdrawn.

In view of the above, Applicants respectfully submit that claims 24-32 and 40-45 are in form for allowance over the art of record and respectfully request that the rejections of claims 24-32 and 40-45 under 35 USC 102 be withdrawn and that claims 24-32 and 40-45 be allowed.

Allowable Subject Matter

Claims 33-39 have been allowed.

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CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 24-39 and 40-45 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 24-39 and 40-45 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(h)(i). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 50-0471.

Please consider this a Petition for Extension of Time for a sufficient number of months to enter these papers, if appropriate. At any time during the pendency of this application, please charge any additional fees or credit overpayment to Deposit Account No. 500471.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to Steven E. Dicke at Telephone No. (612) 573-2002, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

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Date: February 21, 2012
SED/GAK:kmh

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